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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,270	08/18/2003	Hisatoshi Hirota	030897	2427

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EXAMINER

NGUYEN, TUAN N

ART UNIT PAPER NUMBER

3751

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

6

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/642,270	HIROTA, HISATOSHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tuan N. Nguyen	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to the amended claims 1, 2 and 4 have been considered but are moot in view of the new ground(s) of rejection as indicated below.

### ***Claim Rejections - 35 USC § 102 and 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Freisinger et al. (hereinafter Freisinger) as evidenced by Hopkins, Jr.

Freisinger discloses a differential pressure control valve (see Figs. 9 and 10) of pilot-operated type for controlling a flow rate of fluid so that a differential pressure between inlet (112) and outlet (116) sides of the fluid may become equal to a differential pressure set by a value of electric current passed a solenoid thereof, characterized in

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that a diaphragm (190) is arranged at a sliding portion on an outer periphery of a main valve piston (160) for opening and closing a main valve element (about 162) of a main valve, to completely prevent the fluid from leaking through the sliding portion, the main valve piston has an orifice (162, 163) in order to allow passage of the fluid through the main valve piston. The diaphragm, inherently, comprises a film shaped into annular form, the annular film having an inner peripheral edge portion clamped between the main valve piston and a fixing ring (172) secured to the main valve piston, and an outer peripheral edge portion clamped between a body (110) containing the main valve piston and a cylindrical member (111) which is secured to the body and which slidably receives the main valve piston (see Fig. 9). The main valve piston is formed integrally with the main valve element (see Figs. 9 and 10) as a one-piece body, and wherein the orifice connects a space in which the fluid is introduced to a piston chamber (about 114) located on one side thereof opposite the main valve element, pressure in the piston chamber being controlled by a pilot valve (about 130) arranged between the piston chamber and a space (about 140) located on a downstream side of the main valve, to thereby control valve lift of the main valve.

The Freisinger diaphragm is stretchable in a similar manner as that of the instant invention diaphragm; therefore, would inherently comprise a polyimide film. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the Freisinger diaphragm out of polyimide film as, for example, taught by Hopkins, Jr. (if not already).

3. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as obvious over Saeki et al. (hereinafter Saeki) in view of Takano as evidenced by Hopkins, Jr.

Saeki discloses a differential pressure control valve as claimed (see Fig. 8). The seal of Saeki arranged at a sliding portion on an outer periphery of a main valve piston (80) is an O-ring seal instead of a diaphragm as claimed. Attention is directed to Takano, which discloses an analogous differential pressure control valve as discussed in the previous office action, wherein a diaphragm (67) is arranged at a sliding portion on an outer periphery of a main valve piston (64) for opening and closing a main valve element (65) of a main valve, to completely prevent the fluid from leaking through the sliding portion. The diaphragm, inherently, comprises a film shaped into annular form, the annular film having an inner peripheral edge portion clamped between the main valve piston and a fixing ring (66) secured to the main valve piston, and an outer peripheral edge portion clamped between a body containing the main valve piston and a cylindrical member (68) which is secured to the body and which slidably receives the main valve piston (see Fig. 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Saeki seal O-ring with a diaphragm seal as, for example, taught by Takano in order to completely prevent the fluid from leaking through the sliding portion.

The Takano diaphragm is stretchable in a similar manner as that of the instant invention diaphragm; therefore, would inherently comprise a polyimide film. However, it would have been obvious to one having ordinary skill in the art at the time the invention

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was made to make the Takano diaphragm out of polyimide film as, for example, taught by Hopkins, Jr. (if not already).

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rimboym and Reinartz et al. disclose other pilot valve. Brundage discloses a valve piston having orifice therein.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

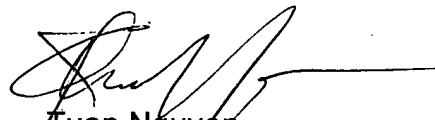
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N. Nguyen whose telephone number is 571-272-4892. The examiner can normally be reached on Monday-Friday (10:00-6:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R. Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan Nguyen  
Primary Examiner  
Art Unit 3751

TN